AMENDMENTS TO THE CLAIMS:

Kindly amend claims 12 and 21, as shown below.

This listing of claims will replace all prior versions and listings of claims in the Application:

Claim 1 (previously presented): Micro-hotplate device with integrated chemical sensor, which comprises:

a) a support substrate;

b) a membrane, supported by and attached to said support substrate, extending over a well in said support substrate;

c) an island attached to said membrane and electrically and thermally isolated from said substrate, said island at least partly comprised of a semiconducting material;

d) at least one heating element integrated in said island;

e) at least one temperature-sensing element integrated in said island;

f) at least one active microelectronic device integrated in said island, wherein said at least one of said at least one active microelectronic device is a chemical sensor whose chemically active layer is exposed to the ambient and which is based on a field-effect detection mechanism.

Claim 2 (previously presented): A micro-hotplate device according to claim 1, wherein said at least one heating element comprises a heating transistor.

Claim 3 (previously presented): A micro-hotplate device according to claim 1, wherein said at least one heating element comprises a heating resistor.

Claim 4 (previously presented): A micro-hotplate device according to claim 1, wherein said at least one temperature-sensing element comprises a temperature-sensitive resistor.

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Claim 5 (previously presented): A micro-hotplate device according to claim 1, wherein said at least one temperature-sensing element comprises a temperature-sensitive diode.

Claim 6 (previously presented): A micro-hotplate device according to claim 1, wherein said membrane comprises at least one insulator layer.

Claim 7 (previously presented): A micro-hotplate device according to claim 6, wherein said at least one insulator layer is comprised of silicon nitride.

Claim 8 (previously presented): A micro-hotplate device according to claim 6, comprising a plurality of insulator layers, wherein electrically conducting leads to the active microelectronic devices on the island are placed between said insulator layers.

Claim 9 (previously presented): A micro-hotplate device according to claim 1, wherein the semiconducting material in the island comprises silicon.

Claim 10 (previously presented): A micro-hotplate device according to claim 1, wherein the semiconducting material in the island comprises silicon carbide.

Claim 11 (previously presented): A micro-hotplate device according to claim 1, wherein the support substrate and the island are made of the same material.

Claim 12 (currently amended): A method for the fabrication of a micro-hotplate device ~~as claimed in claim 1,~~ which comprises sequentially ~~a combination of~~ masking [[steps]] and etching [[steps]] a silicon substrate to define a ~~geometry of the~~ device having a geometry as claimed in claim 1.

Claim 13 (previously presented): A method according to claim 12, said etching steps comprise a plurality of consecutive backside etching steps comprising:

a) depositing a supporting membrane over a silicon substrate;

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b) a first etching step to define a thickness of the island by etching away a region surrounding the island to a certain wanted depth, equal to a target thickness of the island; and

c) a second etching step for etching the island and surrounding region until the island is isolated from the support substrate.

Claim 14 (previously presented): A method according to claim 12, wherein a silicon-on-insulator wafer is used as the substrate whereby a buried insulator layer in said silicon-on-insulator wafer is used as an etch stop to define a thickness of an island of the device, resulting in a silicon island with an insulator layer on its backside.

Claim 15 (previously presented): A method according to claim 14, and further comprising the following steps:

a) etching away from a front side of the device a region surrounding the island down to the buried insulator layer; and

b) etching away from a back side of the device silicon in a region below the island and a region surrounding the island until the buried insulator layer on the island is exposed and the island is attached to the support by the insulator layer.

Claim 16 (previously presented): A method according to claim 14, and further comprising the following steps:

a) oxidizing the silicon layer on a front side of the device down to the buried insulator layer, except for a region where the island should be;

b) etching away from a front side of the device oxide in a region surrounding the island until the underlying silicon substrate is exposed; and

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c) etching away from a back side of the device silicon in a region below the island until a buried insulator layer on the island is exposed and the island is attached to the support by the remaining part of the insulator layer.

Claim 17 (previously presented): A method according to claim 12, wherein at least one of said etching steps is an anisotropic potassium hydroxide etching step.

Claim 18 (previously presented): A method according to claim 12, wherein at least one of said etching steps is an anisotropic tetramethyl ammonium hydroxide etching step.

Claim 19 (previously presented): A method according to claim 12, wherein at least one of said etching steps is a deep reactive ion etching step.

Claim 20 (previously cancelled)

Claim 21 (currently amended): A micro-hotplate device according to claim [[20]] 1, and further comprising at least one chemical sensor that utilizes a detection mechanism different from a field-effect detection mechanism.

Claim 22 (previously cancelled)

Claim 23 (previously presented): A micro-hotplate device according to claim 21, comprising at least one field-effect detection gas sensor combined with at least one gas sensor that utilizes resistance change as a detection mechanism.

Claim 24 (previously presented): A micro-hotplate device according to claim 23, wherein said at least one gas sensor that utilizes resistance change as a detection mechanism is made of a semiconducting metal oxide.

Claim 25 (previously presented): A micro-hotplate device according to claim 23, wherein said at least one gas sensor that utilizes resistance change as a detection mechanism is made of a polymer.

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Claim 26 (previously presented): A micro-hotplate device according to claim 1, wherein the support substrate comprises an array of several islands.

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AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings includes changes to FIGs. 1-5. These sheets, which include FIGs. 1-5, replaces the original sheets including FIGs. 1-5. These drawings include reference numerals.

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